

Notice of Allowability

Application No.

09/464,297

Examiner

Lan Vinh

Applicant(s)

ARONOWITZ ET AL.

Art Unit

1765

eb

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicants remarks filed on 1/22/2004.
2. ☒ The allowed claim(s) is/are 4,7,9-20 and 22-24.
3. ☒ The drawings filed on 15 December 1999 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 031904.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

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EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John Taylor on 3/19/2004

The application has been amended as follows:

In line 8 of claim 19, the term "ore" has been replaced with --or--

In line 15 of claim 19, the term "said second" has been replaced with--a second--

Allowable Subject Matter

2. Claims 4, 7, 9-20, 22-24 allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claims 4, 11, 19, 24, the applicants have presented a persuasive argument, see the last paragraph on page 7, the second and third paragraphs on page 8 and the second paragraph on page 14 of the response, filed on 1/12/2004, that the cited prior art of record fails to disclose or suggest a process for etching away a fixed thickness of silicon oxide comprises the step of maintaining on a semiconductor substrate, an RF bias from a second RF power source maintained at a power level of from above zero up to a power level just below a level at which sputtering of said substrate material would commence on said semiconductor substrate during said

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exposure of said silicon oxide surface to a plasma consisting essentially of a nitrogen plasma; wherein a fixed thickness of silicon oxide will be removed from said silicon oxide region of uniform thickness, leaving a silicon oxide layer having a thinner region of uniform thickness, with the silicon oxide thickness removed dependent upon the power level of an RF bias on said semiconductor substrate, as set forth in claims 4, 11, or the step of maintaining on a semiconductor substrate support, during an exposure of a unmasked regions of said silicon oxide to a plasma consisting essentially of a nitrogen plasma; an RF bias maintained at an RF power level ranging from about 100 Watts/10-50 Watts by a second RF power source; wherein a fixed thickness of silicon oxide will be removed from said silicon oxide region of uniform thickness, leaving a silicon oxide layer having a thinner region of uniform thickness, with the silicon oxide thickness removed dependent upon the power level of an RF bias on said semiconductor substrate, as set forth in claims 19, 20. Since the closest cited prior art of McInerney et al (US 4,690,764) discloses a process for etching a silicon dioxide layer comprises the step of maintaining on a semiconductor substrate, a DC bias using a DC blocking capacitor during an exposure of said silicon oxide surface to a plasma includes N₂O, SiH₄ and argon, the plasma generated by only one RF power source 19, with the silicon oxide thickness removed dependent upon the power level of the DC bias on said semiconductor substrate, one skilled in the art would not have found it obvious to apply a RF bias from a second RF power source to McInerney semiconductor substrate.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Vinh whose telephone number is 571 272 1471.

The examiner can normally be reached on M-F 8:30-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571 272 1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LV

March 19, 2004